COMMERCIAL-SCALE DEMONSTRATION OF THE LIQUID PHASE METHANOL (LPMEOH™) PROCESS

ENVIRONMENTAL MONITORING REPORT NO. 9

For The Period

1 April - 30 June 1999

Prepared by

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and

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for the Air Products Liquid Phase Conversion Company, L.P.

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ACRONYMS AND DEFINITIONS

Acurex Environmental Corporation (now ARCADIS, Geraghty & Miller) Acurex Air Products and Chemicals, Inc. Air Products Alternative Fuels Development Unit - The "LaPorte PDU" **AFDU** A syngas with a composition of hydrogen (H₂), carbon monoxide (CO), and Balanced Gas carbon dioxide (CO₂) in stoichiometric balance for the production of methanol Biochemical Oxygen Demand BOD A syngas containing primarily carbon monoxide (CO); also called CO Gas Carbon Monoxide Gas -Underflow from rectifier column (29C-20), defined as 80 wt% minimum purity; Crude Grade Methanol requires further distillation in existing Eastman equipment prior to use dimethyl ether **DME** United States Department of Energy DOE The DOE's National Energy Technology Laboratory (Project Team) DOE-NETL The DOE's Headquarters - Coal Fuels and Industrial Systems (Project Team) DOE-HQ Demonstration Test Plan - The four-year Operating Plan for Phase 3, Task 2 Operation DTP DVT Design Verification Testing Eastman Chemical Company Eastman Environmental Information Volume EIV **Environmental Monitoring Plan EMP Environmental Monitoring Report EMR EPRI** Electric Power Research Institute Hazardous Air Pollutants **HAPs** A syngas containing an excess of hydrogen (H₂) over the stoichiometric balance for Hydrogen Gas the production of methanol; also called H₂ Gas Integrated Gasification Combined Cycle, a type of electric power generation plant **IGCC** An IGCC plant with a "Once-Thru Methanol" plant (the LPMEOH™ Process) added-on IGCC/OTM Thousand Standard Cubic Feet **KSCF** Thousand Standard Cubic Feet per Hour **KSCFH** The DOE-owned experimental unit (PDU) located adjacent to Air Products' industrial LaPorte PDU gas facility at LaPorte, Texas, where the LPMEOH™ process was successfully piloted Leak Detection and Repair LDAR Liquid Phase DME process, for the production of DME as a mixed coproduct with LPDME methanol Liquid Phase Methanol (the technology to be demonstrated) LPMEOH** Unreacted synthesis gas stream from LPMEOH™ process returned to Eastman's fuel gas Main Plant Purge header Milligrams per cubic meter mg/m³ National Environmental Policy Act **NEPA** National Pollutant Discharge Elimination System **NPDES** New Source Performance Standard NSPS Occupational Safety and Health Administration OSHA Air Products Liquid Phase Conversion Company, L.P. Partnership Process Development Unit PDU Process Flow Diagram(s) PFD parts per billion (volume basis) ppbv Production of Methanol/DME Using the LPMEOH™ Process at an Project Integrated Coal Gasification Facility Pounds per Square Inch (Absolute) psia Pounds per Square Inch (gauge) psig Piping and Instrumentation Diagram(s) P&ID Resource and Conservation Recovery Act **RCRA** Refined Grade Methanol - Distilled methanol, defined as 99.8wt% minimum purity; used directly in downstream Eastman processes

SCFH

Standard Cubic Feet per Hour

ACRONYMS AND DEFINITIONS (cont'd)

Sl/hr-kg - Standard Liter(s) per Hour per Kilogram of Catalyst

Syngas - Abbreviation for Synthesis Gas

Synthesis Gas - A gas containing primarily hydrogen (H₂) and carbon monoxide (CO), or mixtures of

H₂ and CO; intended for "synthesis" in a reactor to form methanol and/or other hydrocarbons (synthesis gas may also contain CO₂, water, and other gases)

the interconnection(s) between the LPMEOH™ Process Demonstration

Facility and the Eastman Facility

TOC - Total Organic Carbon
TLV - Threshold Limit Value
TPD - Ton(s) per Day

VOC - Volatile Organic Compound
WBS - Work Breakdown Structure

wt - Weight

Tie-in(s)

1. Introduction

The Liquid Phase Methanol (LPMEOHTM) Demonstration Project at Kingsport, Tennessee, is a \$213.7 million effort being conducted under a cooperative agreement between the U.S. Department of Energy (DOE) and Air Products Liquid Phase Conversion Company, L.P. (the Partnership). Air Products and Chemicals, Inc. (Air Products) and Eastman Chemical Company (Eastman) formed the Partnership to execute the Demonstration Project. A demonstration unit producing 80,000 gallons per day (260 tons-per-day (TPD)) of methanol from coal-derived synthesis gas (syngas) was designed, constructed, and began a four-year operational period in April of 1997 at a site located at the Eastman complex in Kingsport. The Partnership will own and operate the facility for the four-year demonstration period.

This project is sponsored under the DOE's Clean Coal Technology Program, and its primary objective is to "demonstrate the production of methanol using the LPMEOHTM Process in conjunction with an integrated coal gasification facility." The project will also demonstrate the suitability of the methanol produced for use as a chemical feedstock or as a low-sulfur dioxide, low-nitrogen oxides alternative fuel in stationary and transportation applications. The project may also demonstrate the production of dimethyl ether (DME) as a mixed coproduct with methanol, if laboratory- and pilot-scale research and market verification studies show promising results. If implemented, the DME would be produced during the last six months of the four-year demonstration period.

The LPMEOH™ process is the product of a cooperative development effort by Air Products and the DOE in a program that started in 1981. It was successfully piloted at a 10-TPD rate in the DOE-owned experimental unit at Air Products' LaPorte, Texas, site. This Demonstration Project is the culmination of that extensive cooperative development effort.

2. Project Description

The demonstration unit, which occupies an area of 0.6 acre, is integrated into the existing 4,000-acre Eastman complex located in Kingsport, Tennessee. The Eastman complex employs approximately 10,000 people. In 1983, Eastman constructed a coal gasification facility utilizing Texaco technology. The syngas generated by this gasification facility is used to produce carbon monoxide and methanol. Both of these products are used to produce methyl acetate and ultimately cellulose acetate and acetic acid. The availability of this highly reliable coal gasification facility was the major factor in selecting this location for the LPMEOHTM Process Demonstration. Three different feed gas streams (hydrogen gas or H₂ Gas, carbon monoxide gas or CO Gas, and Balanced Gas) are available from existing operations to the LPMEOHTM Demonstration Unit, thus providing the range of syngas ratios (hydrogen to carbon monoxide) needed to meet the technical objectives of the Demonstration Project.

For descriptive purposes and for design and construction scheduling, the project has been divided into four major process areas with their associated equipment:

- Reaction Area Syngas preparation and methanol synthesis reaction equipment.
- Purification Area Product separation and purification equipment.
- Catalyst Preparation Area Catalyst and slurry preparation and disposal equipment.
- Storage/Utility Area Methanol product, slurry, and oil storage equipment.

The physical appearance of this facility closely resembles the adjacent Eastman process plants, including process equipment in steel structures.

• Reaction Area

The reaction area includes feed gas compressors, catalyst guard beds, the reactor, a steam drum, separators, heat exchangers, and pumps. The equipment is supported by a matrix of structural steel. The most salient feature is the reactor, since with supports, it is approximately 84-feet tall.

• Purification Area

The purification area features two distillation columns with supports; one is approximately 82-feet tall, and the other 97-feet tall. These vessels resemble the columns of the surrounding process areas. In addition to the columns, this area includes the associated reboilers, condensers, air coolers, separators, and pumps.

• Catalyst Preparation Area

The catalyst preparation area consists of a building with a roof and partial walls, in which the catalyst preparation vessels, slurry handling equipment, and spent slurry disposal equipment are housed. In addition, a hot oil utility system is included in the area.

• Storage/Utility Area

The storage/utility area includes two diked lot-tanks for methanol, two tanks for oil storage, a slurry holdup tank, a trailer loading/unloading area, and an underground oil/water separator. A vent stack for safety relief devices is located in this area.

3. Process Description

The LPMEOHTM Demonstration Unit is integrated with Eastman's coal gasification facility. A simplified process flow diagram is included in Appendix A. Syngas is introduced into the slurry reactor, which contains a slurry of liquid mineral oil with suspended solid particles of catalyst. The syngas dissolves through the mineral oil, contacts the catalyst, and reacts to form methanol. The heat of reaction is absorbed by the slurry and is removed from the slurry by steam coils. The methanol vapor leaves the reactor, is condensed to a liquid, sent to the distillation columns for removal of higher alcohols, water, and other impurities, and is then stored in the day tanks for sampling before being sent to Eastman's methanol storage. Most of the unreacted syngas is recycled back to the reactor with the syngas recycle

compressor, improving cycle efficiency. The methanol will be used for downstream feedstocks and in off-site fuel testing to determine its suitability as a transportation fuel and as a fuel for stationary applications in the power industry.

Demonstration Test Plan

Following the start-up of the LPMEOHTM Demonstration Unit, a four-year test plan is being performed by Air Products and Eastman. The goals of the Test Plan are structured to meet the commercialization objectives for the LPMEOHTM Process. Excerpts from Commercialization Objectives from the program Statement of Work are included here to provide the global perspective of the Demonstration Plan:

"Primary Objective

The primary objective of the Project is to demonstrate the commercial scale production of methanol using the LPMEOH™ Process...

The LPMEOHTM Process technology is expected to be commercialized as part of an IGCC electric power generation system. Therefore, the Project incorporates the commercially important aspects of the operation of the LPMEOHTM Process which would enhance IGCC power generation. These important aspects of LPMEOHTM Process integrations are:

- The coproduction of electric power and of high value liquid transportation fuels and/or chemical feedstocks from coal. This coproduction requires that the partial conversion of synthesis gas to storable liquid products be demonstrated.
- Using an energy load following operating concept which allows conversion of off-peak energy, at attendant low value, into peak energy commanding a higher value. The load-following concept makes use of gasifier capacity that is under utilized during low-demand periods by using the LPMEOH™ Process to convert the excess synthesis gas to a storable liquid fuel for use in electric power generation during the peak energy periods. This operating concept requires that on/off and synthesis gas load following capabilities be demonstrated...

During operation, the instrumentation system will allow for the collection of engineering data, analysis and reporting which will be done by on-site technical personnel. Typical reporting will include on-stream factors, material and energy balances, reactor and equipment performance, comparison with laboratory and LaPorte Alternative Fuels Development Unit (AFDU) results, conversion efficiencies and catalyst activity...

Secondary Objective

A secondary objective of the Project is to demonstrate the production of DME (Dimethyl ether) as a mixed coproduct with methanol...

Subject to Design Verification Testing (DVT), the Partnership proposes to enhance the Project by including the demonstration of the slurry reactor's capability to produce DME as a mixed co-product with methanol...

DVT is required to address issues such as catalyst activity and stability and to provide data for engineering design and demonstration decision making...

At the conclusion of the DVT Steps, a joint Partnership/DOE decision will be made regarding continuation of the methanol/DME demonstration. Timing of the final decision must ensure that the necessary design, procurement, construction and commissioning can be completed to allow for (Phase 3, Task 2.2) operation at the end of the primary LPMEOH™ process demonstration period."

The full Demonstration Test Plan (issued September 1996) provides details in the strategy and conditions to be tested during the four-year operating period.

4. Environmental Monitoring Plan (EMP) Description

Air Products Liquid Phase Conversion Company, L.P., has constructed and is operating the 260 ton-per-day Liquid Phase Methanol (LPMEOHTM) Demonstration Unit at the Eastman Chemical facility in Kingsport, Tennessee. As specified in the Cooperative Agreement, the Partnership developed an Environmental Monitoring Plan (EMP) (issued August 1996) which describes in detail the environmental monitoring activities to be performed during the operation of the LPMEOHTM Demonstration Unit. The purpose of the EMP is to: 1) document the extent of compliance monitoring activities, i.e., those activities required to meet permit requirements, 2) confirm the specific environmental impacts predicted in the National Environmental Policy Act documentation, and 3) establish an information base for the assessment of the environmental performance of the technology for future commercialization.

The EMP describes three categories of environmental monitoring which are performed as a result of the operation of the LPMEOHTM Demonstration Unit. Details of streams internal to the demonstration unit are available in the Technical Progress Reports for the Project.

4.1 Eastman Reporting of Publicly Available Technical Data

As defined in the Statement of Work for the Demonstration Project, Eastman will provide data on three areas of operation of the Chemicals-from-Coal complex (refer to Table 4.1 for a breakdown of the streams to be monitored):

- 1) Gasifier material balance data
- 2) 10C-30 Guard Bed operating data
- 3) Wastewater and alcohols to wastewater treatment system

This technical information provides information from Eastman's existing facilities to provide an overall assessment of the LPMEOHTM technology. A Special Topical Report will provide this information. Updates, if any, are included in Quarterly EMRs if a significant change occurs.

4.2 Compliance Monitoring

Four areas of compliance monitoring have been identified to satisfy the permit requirements for the demonstration unit (Table 4.2):

- 1) Combined Vapor Flow from Demonstration Unit to Boiler
- 2) Fugitive Emissions
- 3) Particulate Emissions
- 4) Wastewater Treatment System Outlet Stream

Each of these sources is monitored at a frequency mandated by the relevant permit or industrial hygiene practice. The EMRs will include the results of any compliance monitoring generated during the reporting period.

4.3 Supplemental Monitoring

Three areas of supplemental monitoring have been identified in the EMP (Table 4.3):

Summary of Major Material Balance Streams for Demonstration Unit

The major feed streams (CO Gas, H₂ Gas, Balanced Gas) and product flows (Refined Grade Methanol, Crude Grade Methanol, Main Plant Purge) are provided as a summary table of the cumulative stream flows for the reporting period.

Solid/Liquid Discharges

Four other streams can be generated from the demonstration unit:

- 1) Compressor and Pump Lubricants
- 2) Oil Recovered in Oil/Water Separator
- 3) Spent Catalyst
- 4) 29C-40 Guard Bed Adsorbent

Any quantities generated during the reporting period are included in the EMR.

Noise

The EMP identified that a noise survey around the 29K-01 Recycle Compressor was planned during the initial start-up of the demonstration unit.

TABLE 4.1

LPMEOH™ DEMONSTRATION UNIT

PUBLICLY AVAILABLE TECHNICAL DATA FROM EASTMAN CHEMICALS-FROM-COAL COMPLEX

Environmental Media

General Parameters

Coal

Pressure, Temperature, Coal Analysis

Oxygen to Gasifier

Pressure, Temperature, %O₂

Water to Gasifier

Pressure, Temperature

Waste Water from Gasifier

Pressure, Temperature, Total Organic

Carbon

Clean Synthesis Gas from Gasifier

Pressure, Temperature, Flow

Sulfur Recovered from Gasifier

Pressure, Temperature, Flow, %S

Carbon Dioxide from Gasifier

Pressure, Temperature, Flow, %CO₂

Slag from Gasifier

Pressure, Temperature, Flow

Balanced Gas from 10C-30

Pressure, Temperature, Flow, Composition

Guard Bed

Flow, Composition, BOD

Wastewater and Alcohols to Wastewater Treatment System

TABLE 4.2

LPMEOH™ DEMONSTRATION UNIT

COMPLIANCE MONITORING

Environmental Media

General Parameters

Combined Vapor Flow from Demonstration

Unit to Boiler

Composition

Fugitive Emissions

Leak Detection and Repair (LDAR) Report, Volatile Organic Carbon (VOC), Background Ambient CO Concentration

Particulate Emissions

Threshold Limit Value (TLV)

Wastewater Treatment System Outlet

Stream

Flow, Total Organic Carbon, pH

TABLE 4.3

LPMEOHTM DEMONSTRATION UNIT

SUPPLEMENTAL MONITORING

Environmental Media	General Parameters
CO Gas to LPMEOH™ Demonstration Unit	Cumulative Flow for Quarter
H₂ Gas to LPMEOH™ Demonstration Unit	Cumulative Flow for Quarter
Balanced Gas to LPMEOH™ Demonstration Unit	Cumulative Flow for Quarter
Main Vapor Purge from LPMEOH TM Demonstration Unit	Cumulative Flow for Quarter
Refined Grade Methanol	Cumulative Flow for Quarter
Crude Grade Methanol	Cumulative Flow for Quarter
Compressor and Pump Lubricants	Weight or Volume
Oil Recovered in Oil/Water Separator	Weight or Volume
Spent Catalyst	Weight, Weight% Solids
29C-40 Guard Bed Adsorbent	Weight or Volume
Noise Survey for 29K-01 Recycle Compressor	dBa

5. Project Summary

Synthesis gas was first introduced to the LPMEOHTM Demonstration Unit on 02 April 1997. The nameplate capacity of 80,000 gallons of methanol per day (260 tons-per-day) was achieved on 06 April 1997. During the reporting period, availability for the LPMEOHTM Demonstration Unit was 100%. Table 5.1 summarizes the onstream time and outages of the LPMEOHTM Demonstration Unit during the reporting period.

6. Updates on Eastman "Chemicals-from Coal" Facility Publicly Available Technical Data

6.1 Gasifier Facility

As defined in Section 7.1 of the Environmental Monitoring Plan, publicly available technical data from the Eastman "Chemicals-from-Coal" facility, which includes data on the streams associated with the Gasifier facility, will be issued in a Special Topical Report. If a significant change in gasifier facility operation (e.g., feedstock change, equipment modifications or additions, etc.) occurs, then an update will be provided in a future EMR.

6.2 10C-30 Catalyst Guard Bed

As defined in Section 7.1 of the Environmental Monitoring Plan, publicly available technical data on the trace impurities entering and leaving the Catalyst Guard Bed will be issued in a Special Topical Report.

During the reporting period, there was a change of adsorbent materials within the 10C-30 Catalyst Guard Bed. Prior to this reporting period, the 10C-30 had been charged with both zinc oxide (for sulfur removal) and manganese oxide (for arsine removal). Beginning on 05 June 1999, the Eastman operations team began the preparations for changing the adsorbents in the Catalyst Guard Bed; during this work, the existing materials were removed and the 10C-30 was recharged with only manganese oxide.

6.3 Wastewater and Alcohols to Wastewater Treatment System

The report on publicly available technical data from the Eastman "Chemicals-from-Coal" facility, which includes data on the streams associated with the wastewater and alcohols to the Wastewater Treatment System, will be issued in a Special Topical Report. This will consist of a comparison of the flow, composition, and BOD load of this stream before and after the addition of the LPMEOHTM Demonstration Unit.

Table 5.1

Summary of LPMEOHTM Demonstration Plant Onstream Time and Outages - April / June 1999

Reason for Shutdown	Shutdown for Outage Syngas Outage Syngas Outage	
Shutdown Hours	272.0 11.0 29.0	1872.0 2184.0 100.00
Operating Hours	388.5 214.0 1209.5 60.0	
Operation End	4/17/99 04:30 5/7/99 10:30 6/27/99 07:00 6/30/99 23:59	Total Operating Hours Total Elapsed Hours Plant Availability, %
Operation Start	4/1/99 00:00 4/28/99 12:30 5/7/99 21:30 6/28/99 12:00	7.07

7. Compliance Monitoring

7.1 Combined Vapor Flow from Demonstration Unit to Boiler

A sample of the header gas from the LPMEOHTM Demonstration Unit must be analyzed as part of the Boiler and Industrial Furnace regulations within RCRA. Sampling is currently required every three years. During the development of the EMP, it was anticipated that the new tie-in from the LPMEOHTM Demonstration Unit to the Eastman fuel header would require testing as a new source. After the EMP was published, it was determined that the new tie-in was not considered a significant change and did not require testing. Therefore, with the current sampling schedule, the next sample will be taken in February of 2000.

No activity occurred during the reporting period.

7.2 Fugitive Emissions

7.2.1 Leak Detection and Repair (LDAR)

No activity occurred during the reporting period. The next report on Leak Detection and Repair at the LPMEOHTM Demonstration Unit is scheduled for the third quarter of calendar year 1999.

7.2.2 Ambient Carbon Monoxide Background Concentration

This one-time study was completed in June of 1998, and documents the concentration of CO that is encountered by a LPMEOHTM operations person during the course of a normal day of plant operations. The report on this study is included in Environmental Monitoring Report No. 5. Both the time-weighted average and the peak values for CO were below the established limits by the Tennessee Operational Health and Safety Administration.

7.3 Particulate Emissions

This one-time study was completed in July of 1997, and documents the exposure level to particulate emissions that is encountered by a LPMEOH™ operations person during the catalyst charging process. The report on this study is included in Environmental Monitoring Report No. 1. Some engineering modifications to the catalyst loading system are planned to reduce the dust concentration and potential personnel exposure.

7.4 Wastewater Treatment System Outlet Stream

The reports on the outfall from the Wastewater Treatment System (Discharge Number 002) for the reporting period is attached in Appendix B. There were no permit excursions.

A process stream within the existing Eastman facility which is impacted by the operation of the LPMEOHTM Demonstration Unit contains the byproduct alcohols and water which are generated in parallel with the production of methanol. This stream is sent to the Eastman

Wastewater Treatment System. As noted in Section 6.3, a comparison of the flow, composition, and BOD load of this stream before and after the addition of the LPMEOH™ Demonstration Unit will be included in a Special Topical Report on publicly available technical data from the Eastman "Chemicals-from-Coal" facility.

During the reporting period, Eastman has determined that the LPMEOHTM Demonstration Unit is subject to a new regulation under the New Source Performance Standards (NSPS). Subpart YYY is targeted at reducing emissions of volatile organic compounds (VOC's) from waster water streams. The new regulation applies to the LPMEOHTM Demonstration Unit since construction was completed after September of 1994. Eastman has reviewed this regulation and has determined that no modifications to the LPMEOHTM Demonstration Unit will be required.

8. Supplemental Monitoring

8.1 Total Synthesis Gas Use and Methanol Production

Table 8.1 contains the summary of the major process flows to and from the LPMEOH™ Demonstration Unit for the reporting period. Approximately 3,790,000 gallons (12,500 tons) of methanol (Refined and Crude Grades) were produced during the reporting period.

8.2 Oil/Water Separator

A total of 24,000 pounds of oil was removed from the Oil/Water Separator during the reporting period. In addition, a total of 24,000 pounds of oil was recovered from other equipment within the existing Eastman complex. This material has been incinerated for energy recovery.

8.3 Compressor and Pump Lubricants

No material was generated during the reporting period.

8.4 Spent Catalyst Slurry

A total of 26,400 pounds of methanol synthesis catalyst were removed from the LPMEOHTM reactor during prior reporting periods. This material was shipped to the off-site catalyst reclaimer during this reporting period.

An additional 13,200 pounds of spent catalyst slurry was removed from the LPMEOHTM Reactor (drained into drums) during this reporting period. This material is presently stored on site, and arrangements are being made to ship this material to the off-site catalyst reclaimer.

Table 8-1
Synthesis Gas Use and Methanol Production - April/June 1999
LPMEOH™ Demonstration Unit

	April 1999	May 1999	June 1999	Total
Consumption, KSCF				
Balanced Gas	252,626.0	379,459.0	357,511.0	993,596.0
CO Gas	41.0	41.0	42.0	124.0
H ₂ Gas	0.0	0.0	0.0	0.0
Production, Tons				
Crude Methanol	1,047.3	1,700.5	1,609.3	4,357.1
Refined Methanol	2,063.4	3,258.3	2,821.5	8,143.2
Total Purge Gas, KSCF	43,931.0	52,511.0	41,712.0	138,154.0

8.5 29C-40 Catalyst Guard Bed Spent Adsorbent

During the reporting period, there was a change of adsorbent materials within the 29C-40 Carbonyl Guard Bed. Prior to this reporting period, the 29C-40 had been charged with both activated carbon (for removal of metal carbonyls). Beginning on 05 June 1999, the Eastman operations team began the preparations for changing the adsorbents in the Carbonyl Guard Bed. Approximately 6,553 pounds of activated carbon was removed from the vessel (placed into drums). The spent activated carbon is presently stored on site, and will be sent offsite for disposal. The 29C-40 was then recharged with 2,983 pounds of manganese oxide (for arsine removal) and 2,367 pounds of activated carbon.

8.6 Noise

The results of noise dosimetry measurements of the entire LPMEOHTM Demonstration Unit were reported in Environmental Monitoring Report No. 1. The results of an area noise survey at each platform of the LPMEOHTM Demonstration Unit and around the 29K-01 Recycle Compressor were reported in Environmental Monitoring Report No. 2. No additional surveys were performed during the reporting period.

9. Compliance

9.1 Compliance with Permit Limits

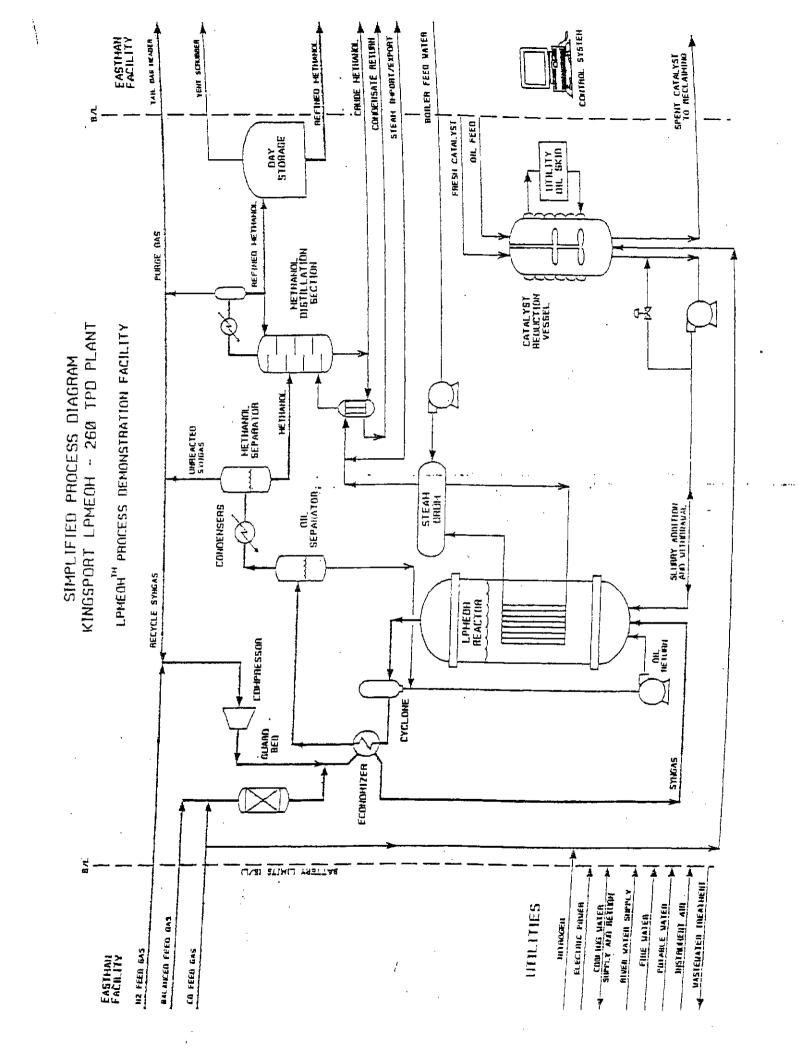
There were no excursions outside permit limits associated with the operation of the LPMEOH™ Demonstration Unit.

10. Problems and Recommendations

There have been no significant problems arising in the environmental area.

APPENDICES

APPENDIX A - SIMPLIFIED PROCESS FLOW DIAGRAM





NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)

DISCHARGE MONITORING REPORT (DMR)

PERMIT NUMBER TN0002640

DIVISION OF EASTMAN CHEMICAL CO.

P.O. BOX 1993

PERMITTEE NAME/ADDRESS: TN EASTMAN DIVISION

DISCHARGE NUMBER | F - FINAL 002 G

(SUBR 06)

MAJOR

FORM APPROVED OMB No. 2040-0004

INDUSTRIAL PROCESS WASTEWATER

EFFLUENT

NOTE: Read instructions before completing this form. - NO DISCHARGE L

99 - 04 - 30

99 - 04 - 01

FROM

Location: SULLIVAN COUNTY TN 37662-5393

Facility: TN EASTMAN - KINGSPORT KINGSPORT, TN 37662-5393

MONITORING PERIOD 2

Sample Type	(02-69)	N/A	RECORDER	Composite		Composite	201	Grab	##3 • 11 • 12 • 13 • 13 • 13 • 13 • 13 • 13 • 13 • 13	Composite	Colline Same	Composite) - 150-110 0	Composite	S. O. #	DATE	, 5	(423) 229-2000 99-03-12
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Loading	TIND		***	(56)	LBS/DAY	(92)	LBS/DAY	(26)	K. LBS/DAY	(26)	LBS/DAY	(32)	LBS/DAY	(32)	LBS/DAY	ALL ATTACHMENTS WERE PREFACED UNDER ANY	ARED OF ANY PRODUCT OF THE PERSON OR PERSONS WINELES FOR GATHERING THE INPORMATION. THE INPORMATION. THE INPORMATION. THE BELIEF, THUE, ACCURATE, AND COMPLETE, I AM	DRIMATION, INCLUDI
Quantity or (54-61)	MAXIMUM	********	**************************************	8,329	DATEVITOR	93	DANS MEE	> 1.96	7495 DAILY ARK	1.55	DAILY MAX	5.12	21.85 DAYLY MAX	69.0	150.77 DAILY MAX	THE DOCUMENT AND ALL ATTA	WITH A STRIEM DEMONED IN LATION RUBATITED (ASED ON) NY ENOWIEDGE AND BELIEF, 19	IES FOR SUBSAFTTING FALSE FIF
(3 Card Only) (46-53)	AVERAGE			4,033	(0093*	37	BEGA MON AVG	> 1.96	10'49 MON'AVG	1.55	10.93*	5.12	10:93 MONAVG	0.63	37.58 MÖN AVG	ER PENALTY OF LAW THAT TO	выествые катактары и катактары и катактары бараптар было и петатары петатары петатары петатары петатары петата В петатары бараптары катактары катактары катактары катактары катактары катактары бараптары катактары кат	AWARE THAT THERE ARE INCATFICANT PENALTIES FOR SUBMITTING!
		SAMPLE MEASUREMENT	PERMIT REQUIREMENT	SAMPLE MEASUREMENT	PERMIT REGUIREMENT	SAMPLE MEASUREMENT	PERMIT REQUIREMENT	SAMPLE MEASUREMENT	PERMIT REQUIREMENT	SAMPLE MEASUREMENT	PERWIT REQUIRENENT	SAMPLE MEASUREMENT	PERMIT REQUIREMENT	SAMPLE MEASUREMENT	PERMIT REQUIREMENT	\prod	DILECTION OR PROPELLY GAT WHO LANAGE PREDIMATION Y	AWARE THAT I
PARAMETER	(32-37)	-	00400 1 0 0 EFFLUENT GROSS VALUE	SOLIDS, TOTAL SUSPENDED	ROSS VALUE		T VALUE	CYANIDE, TOTAL (AS CN)	00720 2 0 0 EFFLUENT NET VALUE	CHROMIUM, TOTAL (AS CR)	01034 2 0 0 EFFLUENT NET VALUE	5	01042 2 0 0 EFFLUENT NET VALUE	LEAD, TOTAL (AS PB)	01051 2 0 0 EFFLUENT NET VALUE	NAME / TITLE PRINCIPAL EXECUTIVE OFFICER	H. H. Holliman, President	Lennessee Casuman Division

COMMENT AND EXPLANATION OF ANY VIOLATIONS

(Reference all attachments here)

in addition to taking reasonable steps to prevent instances of noncompliance through the implementation of SPCC and SPCC-type plans, employee training, etc. when a potentially significant instance occurs, we notify the Division and provide information concerning the steps taken or planned to reduce, eliminate, and prevent recurrence of the instance

EPA FORM 3320-1 (REV 9-88) Previous editions may be used.

(REPLACES EPA FORM T-40 WHICH MAY NOT BE USED.

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)

DISCHARGE MONITORING REPORT (DMR)

PERMIT NUMBER

DIVISION OF EASTMAN CHEMICAL CO.

PERMITTEE NAME/ADDRESS:

TN EASTMAN DIVISION

(SUBR 06) DISCHARGE NUMBER 002 G

EFFLUENT F - FINAL 99 - 04 - 30 MONITORING PERIOD ဝ 99 - 04 - 01

FROM

Location: SULLIVAN COUNTY TN 37662-5393

Facility: TN EASTMAN - KINGSPORT

KINGSPORT, TN 37662-5393

P.O. BOX 1993

NDUSTRIAL PROCESS WASTEWATER → NO DISCHARGE

OMB No. 2040-0004

FORM APPROVED

MAJOR

AE AR eal, los ್ಷತ್ತು ಚಿತ್ರಗಳಿತ Sample Composite Composite Composite DATE (02-69)Type ¥ NOTE: Read instructions before completing this form Frequency of Continuous Analysis (64-68)30/30 TELEPHONE 7 11 (62-63)껇 0 0 0 0 ¥ Ø HNO MGA ŧ į (19) (19 Concentration MAXIMUM 0.064 ******* 54-61 Quantity or 4.690 MONTAVG AVERAGE (46-53)0.014 0.064 ***** ******* (4 Card Only) MINIMOM ******* ****** ******* ****** ***** ****** THE THE OF A PRINCIPLE OF THE THE PRODUCT OF THE PR Loading LBS/DAY LBS/DAY LBS/DAY WGD HNO 26) (58) 33 (28) Quantity or DATE WAX 6000 13000 DATE WAX REPORT OF SEPORT MAXIMUM 1,879 12.69 27.2 2.85 158/00 MON AVG (3 Card Only) 422.84 MON AVG AVERAGE 1,224 12.69 (46-53) 2.85 22.2 PERMIT RECOUREMENT PERMIT REQUIREMENT PERMIT. REQUIREMENT WEASUREMENT MEASUREMENT MEASUREMENT MEASUREMENT MEASUREMENT RECOUREMENT MEASUREMENT REQUIREMENT PERMIT REQUIRENT PERMIT REGUIREMENT MEASUREMENT SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE NAME / TITLE PRINCIPAL EXECUTIVE OFFICER THRU TREATMENT PLANT **EFFLUENT GROSS VALUE** H. H. Holliman, President BOD, CARBONACEOUS **EFFLUENT NET VALUE** FLOW, IN CONDUIT OR **EFFLUENT NET VALUE EFFLUENT NET VALUE** NICKEL TOTAL (AS NI) PARAMETER ZINC, TOTAL (AS ZN) (32-37)80082 2 W 0 50050 1 0 0 01092 2 0 0 01067 2 0 0 05 DAY, 20C

COMMENT AND EXPLANATION OF ANY VIOLATIONS

Fennessee Eastman Division

TYPED OR PRINTED

(Reference all attachments here)

in addition to taking reasonable steps to prevent instances of noncompliance through the implementation of SPCC and SPCC-type plans, employee training, etc. when a potentially significant instance occurs, we notify the Division and provide information concerning the steps taken or planned to reduce, eliminate, and prevent recurrence of the instance.

EPA FORM 3320-1 (REV.9-88) Previdus editions may be used.

PAGE 3 OF 7

(REPLACES EPA FORM T-40 WHICH MAY NOT BE USED.)

YEAR MO DAY 99 - 05 - 12

(423) 229-2000 AREA CODE NUMBER Forms by Windowchen

SIGNATURE OF KINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT

PAGE 2 OF 7

DIVISION OF EASTMAN CHEMICAL CO. KINGSPORT, TN 37662-5393 PERMITTEE NAME/ADDRESS: TN EASTMAN DIVISION P.O. BOX 1993

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) DISCHARGE NUMBER 002 G DISCHARGE MONITORING REPORT (DMR) PERMIT NUMBER TN0002640

F - FINAL

(SUBR 06)

MAJOR

FORM APPROVED OMB No. 2040-0004

INDUSTRIAL PROCESS WASTEWATER

" NO DISCHARGE | " **EFFLUENT**

99 - 05 - 31

99 - 05 - 01

FROM

Location: SULLIVAN COUNTY TN 37662-5393

Facility: TN EASTMAN - KINGSPORT

MONITORING PERIOD 9

	Sample	Type	(02-69)	N/A	RECORDER	Composite	COMPOSITE	Сотрозіте	COMPOSITE	Grab	D.	Composite	5. S6cm60	Composite	1. 1. 7. 0. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1. 1.	Composite		U 4 -	00-00	YEAR MO DAY	845;ph11090;v5.01;4/1/86
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tructions			UNIT	(12)	SS			(19)	MG/L	(19)	MG/L	(E) (E)	γ _Q	(19)	MG/L	(19)	¥G/		N ½	<u> </u>	
NOTE: Read instructions before	Concentration	(54-61)	MAXIMUM	7.7	9.0 HAXIMUN	*****		0.2	DARWINK.	<0.010	10.11	0.014		0.035	O III	<0.030		•	WCIPAL EXECUT	OFFICER OR AUTHORIZED AGENT	
	1;	(46-53)	AVERAGE	*******		*******		0.1	1005 X	<0.010	MONTAL S	0.012		0.023	10 V.C	<0.030	SV VO	J. J	WWW. AUGUNTALIANS	OFFICER OR AU	
2	(4 Octob	(4 Card Only) (38-45)	MINIMUM	6.9	6.0 WINIMUM	*****	*********	*******	7. 60.	******				*******		********		PREPARED UNDER NY			_ -
		Loading	LIND		**	(56)	LBS/DAY.	(36)	LBS/DAY	(26)	LBS/DAY	(26)	LBS/DAY	(26)	LBS/DAY	(26)	LBS/DAY	10	BARRELL IN ASSETT IN CONTROL OF THE PERSON OR TREADMENT OF THE PERSON OR TREADMENT OF THE PERSON OF TREADMENT OF THE PERSON OR TREADMENT OF THE PERSON OF TREADMENT OF THE PERSON OF TREADMENT OF THE PERSON OF TREADMENT OF THE TREADMENT OF THE TREADMENT OF TREADMENT OF THE TREADM	FALSE DVIORINATION, INCLUDING THE POSITISELITY	
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r TN 37662-5393				SAMPLE	PERMIT REQUIREMENT	SAMPLE MEASUREMENT	PERMIT REGUIREMENT	SAMPLE MEASUREMENT	RECOURE MENT	SAMPLE	PERMENT REGUINEMENT	SAMPLE SAMPLE MEASUREMENT	REGINERAL PARTY	SAMPLE SAMPLE MEASUREMENT	A STATE OF THE STA	SAMPLE MEASUREMENT	RECONSTRUCTOR	I CENTURY UND			
Location: SULLIVAN COUNTY TN 37662-5393		DADAMETED	(32-37)	Hd	00400 1 0 0 FEFLUENT GROSS VALUE	-	ROSS VALUE	NITROGEN, AMMONIA	TVALUE	ŝ	00720 2 0 0	S CR)	01034 2 0 0	COPPER, TOTAL (AS CU)	01042 2 0 0 FEFLUENT NET VALUE	LEAD, TOTAL (AS PB)	01051 2 0 0	NAME / TITLE PRINCIPAL EXECUTIVE OFFICER	H. H. Holliman, President	Tennessee Eastman Division	TYPED OR PRINTED

In addition to taking reasonable steps to prevent instances of noncompliance through the implementation of SPCC and SPCC-type plans, employee training, etc. when a potentially significant COMMENT AND EXPLANATION OF ANY VIOLATIONS

(Reference all attachments here)

(REPLACES EPA FORM T-40 WHICH MAY NOT BE USED. instance occurs, we notify the Division and provide information concerning the steps taken or planned to reduce, eliminate, and prevent recurrence of the instance

EPA FORM 3320-1 (REV.9-88) Previous editions may be used.

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)

DISCHARGE MONITORING REPORT (DMR)

DISCHARGE NUMBER 002 PERMIT NUMBER TN0002640

DIVISION OF EASTMAN CHEMICAL CO.

PERMITTEE NAME/ADDRESS:

TN EASTMAN DIVISION

MONITORING PERIOD

99 - 05 - 31

ဥ

99 - 05 - 01

FROM

Location: SULLIVAN COUNTY TN 37662-5393

Facility: TN EASTMAN · KINGSPORT

KINGSPORT, TN 37662-5393

P.O. BOX 1993

INDUSTRIAL PROCESS WASTEWATER F - FINAL

FORM APPROVED OMB No. 2040-0004

(SUBR 06)

MAJOR

** NO DISCHARGE EFFLUENT

99 - 06 - 10 YEAR MO DAY Sample Composite Composite Composite DATE (02-69)Type ≸ NOTE: Read instructions before completing this form Frequency of Continuous Analysis (423) 229-2000 (64-68)331 88 TELEPHONE 3 (62-63) <u>Ş</u> ሿ 0 F ₹ ₩ MG/L (3) (19) SIGNATURE OF PRINCIPAL EXECUTIVE Concentration MAXIMUM 0.053 0.03 4 (54-61)******* Quantity or AVERAGE (46-53)0.040 0.027 A WAR (4 Card Only) MINIMOM (3845) ****** ******* ******* ******* LBS/DAY LBS/DAY **LBS/DAY** Quantity or Loading AGD MCD LNO 8 (03) 8 (36) MAXIMUM 1. 1. K (54-61)10.55 2,076 26.5 6.62 (3 Card Only) AVERAGE 1,238 (46-53)23.5 5.35 8.07 มายเกลือนกำวัฐกร พระการกระส MEASUREMENT MEASUREMENT MEASUREMENT MEASUREMENT REGIONAL MENT MEASUREMENT MEASUREMENT MEASUREMENT ויים ולבינוריו שבינ DENERHOUSEN والإقرار المعارية SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE NAME / TITLE PRINCIPAL EXECUTIVE OFFICER Tennessee Eastman Division **EFFLUENT GROSS VALUE** THRU TREATMENT PLANT **EFFLUENT GROSS VALUE** H. H. Holliman, President FLOW, IN CONDUIT OR BOD, CARBONACEOUS NICKEL, TOTAL (AS NI) **EFFLUENT NET VALUE EFFLUENT NET VALUE** PARAMETER ZINC, TOTAL (AS ZN) (32-37)80082 2 W 0 50050 1 0 0 01092 2 0 0 01067 2 0 0 05 DAY, 20C

COMMENT AND EXPLANATION OF ANY VIOLATIONS

TYPED OR PRINTED

(Reference all attachments here)

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EPA FORM 3320-1 (REV.9-88) Previous editions may be used.

(REPLACES EPA FORM T-40 WHICH MAY NOT BE USED.)

AREA CODE NUMBER YEAR MO DAY Forms by WindowChem/707)884-0845;pm11980;v5.01;41/89

OFFICER OR AUTHORIZED AGENT

EPA FORM 3320-1 (REV.9-88) Previous editions may be used.

PERMITTEE NAME/ADDRESS: TN EASTMAN DIVISION

DIVISION OF EASTMAN CHEMICAL CO. P.O. BOX 1993

Facility: TN EASTMAN - KINGSPORT KINGSPORT, TN 37662-5393

DISCHARGE MONITORING REPORT (DMR) PERMIT NUMBER TN0002640

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)

MAJOR

(SUBR 06) DISCHARGE NUMBER F-FINAL

FORM APPROVED OMB No. 2040-0004

INDUSTRIAL PROCESS WASTEWATER

** NO DISCHARGE |_ | ** **EFFLUENT**

99 - 06 - 30

99 - 06 - 01

FROM

Location: SULLIVAN COUNTY TN 37662-5393

MONITORING PERIOD 2 NOTE: Read instructions before completing this form.

		(3 Card Only)	Quantity or	Loading	(4 Card Only)	Quantity or	Concentration		Ŋ.	Frequency of	Sample
PARAMETER	X	(46-53)	(54-61)		(38-45)	(46-53)	(54-61)		Ж	Analysis	Type
(32-37)	/	AVERAGE	MAXIMUM	LINO	MINIMOM	AVERAGE	MAXIMUM	UNIT	(62-63)	(64-68)	(02-69)
Hd	SAMPLE MEASUREMENT	****	****		6.7	********	5.7	(12)	0	Continuous	N/A
00400 1 0 0 EFFLUENT GROSS VALUE	RECHIEVE			***	6.0 MINIMUM		in in the second of the second	ns		डाउजनागुन्ध	RECORDER
SOLIDS, TOTAL SUSPENDED	SAMPLE MEASUREMENT	2,362	3,486	(36)	****	********	******		0	IJ€	Composite
00530 1 0 0 EFFLUENT GROSS VALUE	REQUIREMENT	10093 MONAVG	32687 DAILY MAX	LBS/DAY				***	,	XINVEEK	COMPOSITE
NITROGEN, AMMONIA TOTAL (AS N)	SAMPLE MEASUREMENT	- 75	62	(26)	***	0.4	0.5	(19)	0	<i>1</i> /1	Composite
00610 2 0 0 EFFLUENT NET VALUE	REQUIREMENT	MON AVG	13329 DAILY MAX	LBS/DAY	********	MONAVG	XVIII NOT	MG/L		HEEK	COMPOSITE
CYANIDE, TOTAL (AS CN)	SAMPLE MEASUREMENT	< 2.10	< 2.10	(26)	*******	< 0.010	< 0.010	(19)	0	1/30	Grab
00720 2 0 0 EFFLUENT NET VALUE	REQUIRENT	ID 49 MON AVG	74.95 DAILY MAX	LBS/DAY	-	ANOW AVG	extra to	MG/L		CNGETMONTH	GRAB
CHROMIUM, TOTAL (AS CR)	SAMPLE MEASUREMENT	3.25	3.25	(26)		0.016	0.016	(19)	0	1/30	Composite
01034 2 0 0 EFFLUENT NET VALUE	REQUIREMENT	10 93 MON AVG	21:85 DAILY MAX	LBS/DAY	*******	ODSO MON AVG	DALINGHAX	MG/L		ONCEIMONTH	COMPOSITE
COPPER, TOTAL (AS CU)	SAMPLE MEASUREMENT	1.09	1.09	(26)	*****	0.005	0.005	(19)	0	1/30	Composite
01042 2 0 0 EFFLUENT NET VALUE	PERME REQUIREMENT	10.93 MON AVG	21.85 DAILY MAX	LBS/DAY	*******	0,050 MON AVG	ONDO DAUCKMAX	MG/L		ОИСЕМОИТН	COMPOSITE
LEAD, TOTAL (AS PB)	SAMPLE MEASUREMENT	. < 6.29	67'9 >	(26)	******	< 0.030	< 0.030	(19)	0	1/30	Composite
01051 2 0 0 EFFLUENT NET VALUE	PERMIT REQUIREMENT	37.58 MON AVG	150.77 DAILY MAX	LBS/DAY	*******	0.172 MON Aya	ONESCI DAIL SOMEX	MG/L		ONGEMONTH	COMPOSITE
NAME / TITLE PRINCIPAL EXECUTIVE OFFICER		CERTEY UNDER PENALTY OF LAW THAT THIS DOCUMENT AND	HE DOCUMENT AND ALL ATT	ALL ATTACHURNTS WERE PREPARED UNDER MY	EPARED UNDER MY	Jan .	•		1	TELEPHONE	DATE
H. H. Holliman, President	NOLLOSING D ATREMOMA D A D A D A D A D A D A D A D A D A D	DELECTION OR SUPERVICION IN ACCOMBANCE WITH A STRIPLA DESCRIED TO ASSURE THAT QUALIFIED FEBONNES. TROPELLY CATHER, AND EVALUATE THE INFORMATION SUBMITIZED BASED ON MY PRICIEVE OF THE FESSION OR FISSORI WHO MANAGE THE STSTEL, CATHORS FESSION DIRECTLY RESPONSIBLE FOR CATHERING THE INFORMATION. THE	WITH A TYSTEM DESIGNED T AATION SUBMITTED, BASED ON MG DRECTLY RESPONSIBLE P	'O ASSURE THAT QUA MY ENQUIRY OF THE P OR OATHERIDAG THE	LISTED PERSONNEL ERSON OR PERSONS INFORMATION: THE	N Sail	Paren	N			
Tennessee Eastman Division	į	DIPORILATION STRAITTED IS, TO THE BEST OF MY KNOWLEDGE AND BELIEF, TRUS, AKKURATE, AND COMPLIET. I AM WANG THAT THERE ALE BARDIFICATE FRALITES FOR STRAITTING FALSE DIPORALTION INCLUDING THE POSSIBILITY OF THE AND THE POSSIBILITY STRAIGHTS AND ACTION.	MY KNOWLEDGE AND BELIEF. IES POR SUBMITTING FALSE DIT 4TYOM	TRUE, ACCURATE, AN POEMATION, ENCLUDIN	<u>-</u>	SIGNATURE OF PRINCIPAL EXECUTIVE	NCIPAL EXECUTA	\# \#	(42	(423) 229-2000	99 - 07 - 13
TYPED OR PRINTED	A turnous	MCMACAN CANADAN STATE	Allera.		_	OFFICER OR AU	OFFICER OR AUTHORIZED AGENT		ARE	AREA CODE NUMBER	YEAR MO DAY
Chryste To Bott Alle Idea Chr Tidanson	SHOP OF A		a commission ()	il other change of	1		\			Forms by WindowChem(707)864-0845;p/n11090;v5:01;4/1/36	-0845;p/n11090;v5.01;4/1/96

COMMENT AND EXPLANATION OF ANY VIOLATIONS

(Reference all attachments here)

In addition to taking reasonable steps to prevent instances of noncompliance through the implementation of SPCC and SPCC-type plans, employee training, etc. when a potentially significant instance occurs, we notify the Division and provide information concerning the steps taken or planned to reduce, eliminate, and prevent recurrence of the instance

AREA CODE NUMBER YEAR MO DAY Forms by WindowChem(707)864-0645,ph11090;v5;01;47/39

99 - 07 - 13

(423) 229-2000

SIGNATURE OF PRINCIPAL EXECUTIVE OFFICER OR AUTHORIZED AGENT

DATE

TELEPHONE

NOTE: Read instructions before completing this form. INDUSTRIAL PROCESS WASTEWATER " NO DISCHARGE | " 2980 XAN X-11AO Concentration MAXIMUM EFFLUENT 0.026 (SUBR 06) (54-61) 0.071 ******* ******* F - FINAL DISCHARGE NUMBER Quantity or AVERAGE 01.7 - 30 0.026 0.071 (46-53)******* **** 90 - 66 MONITORING PERIOD (4 Card Only) MINIMUM ****** ******* **STATES** ****** ****** Anthoneses -ဥ **LBS/DAY** LBS/DAY LBS/DAY Loading MGD N -0 PERMIT NUMBER TN0002640 (26) (56) 8 (36) 90 - 66 Quantity or 277.54 DAILY MAX DAILY MAX DAILY MAX DAILY MAX MAXIMUM REPORT 869.66 14.80 (54-61)26.6 2,777 5.40 8500 FROM

CH CVC

PERMIE N

EFFLUENT GROSS VALUE

BOD, CARBONACEOUS

24.4

MEASUREMENT

THRU TREATMENT PLANT

EFFLUENT NET VALUE FLOW, IN CONDUIT OR

SAMPLE

1,310

MEASUREMENT

SAMPLE

MONTAVE

RECUIRENTA

EFFLUENT GROSS VALUE

05 DAY, 20C

PERMIT:

MEASUREMENT

SAMPLE

MEASUREMENT

SAMPLE

PERMIT REQUIREMENT

NAME / TITLE PRINCIPAL EXECUTIVE OFFICER

Tennessee Eastman Division

H. H. Holliman, President

PERMIT REQUIREMENT

MEASUREMENT

SAMPLE

COMPOSITE

WHEEK

1

Composite

37

0

COMPOSITE

ONCEMONTA

MG/

Composite

1/30

0

6

(02-69)

(62-63)

Sample Type

Frequency of

S 및

(3 Card Only)

Location: SULLIVAN COUNTY TN 37662-5393

-acility: TN EASTMAN - KINGSPORT

KINGSPORT, TN 37662-5393

o.O. BOX 1993

DIVISION OF EASTMAN CHEMICAL CO.

PERMITTEE NAME/ADDRESS:

IN EASTMAN DIVISION

(46-53)

AVERAGE

5.40

MEASUREMENT

NICKEL, TOTAL (AS NI)

PARAMETER

(32-37)

36928 MONAVG

REQUIREMENT

EFFLUENT NET VALUE

ZINC, TOTAL (AS ZN)

PERMIT

14.80

MEASUREMENT

SAMPLE

PERMITA REQUIREVENE

Analysis (64-68)

OMB No. 2040-0004 FORM APPROVED

(NPDES) MAJOR

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM

DISCHARGE MONITORING REPORT (DMR)

Composite

1/30

0

(19)

COMPOSITE

RECORDER

CONTRIBUTORS

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Continuous

0

MG/L

COMMENT AND EXPLANATION OF ANY VIOLATIONS

(Reference all attachments here)

in addition to taking reasonable steps to prevent instances of noncompliance through the implementation of SPCC and SPCC-type plans, employee training, etc. when a potentially significant instance occurs, we notify the Division and provide information concerning the steps taken or planned to reduce, eliminate, and prevent recurrence of the instance

YEAR MO DAY

AREA CODE NUMBER

OFFICER OR AUTHORIZED AGENT

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)

DISCHARGE MONITORING REPORT (DMR)

PERMIT NUMBER

TN0002640

DIVISION OF EASTMAN CHEMICAL CO.

P.O BOX 1993 KINGSPORT,

TN EASTMAN DIVISION PERMITTEE NAME/ADDRESS:

Facility: TN EASTMAN - KINGSPORT

TN 37662-5393

F - FINAL DISCHARGE NUMBER

(SUBR 06)

MAJOR

FORM APPROVED OMB No.2040-0004

PROCESSED WW QUARTERLY REPORT

EFFLUENT

*** NO DISCHARGE

99 - 06 - 30 MONITORING PERIOD

NOTE: Read instructions before completing this form. 99 - 07 - 13 GRAB GRAB Sample (02-69)GRAB GRAB GRAB DATE GRAB Type Grab Grab GRAB Grab Grab Grab Grab Grab (423) 229-2000 TELEPHONE QUARTERLY OUARERLY Frequency of OURSERIE OUNTERIN OUABRERLY. OUTREELY **SUMPLERLY** 3/Quarter 3/Quarter analysis 3/Quarter 3/Quarter 2/Quarter 2/Quarter 3/Quarter (64-68) (62-63)S X 0 0 0 0 0 0 0 SIGNATURE OF PRINCIPAL EXECUTIVE MG/L MG/L MG/L MG/L MG/L WG/L MG/L <u>6</u> (1 6 6 <u> 6</u> 6 6 Concentration DAMESTING Mary Mary DAIREMAN 0.00 Maximum <0.001 **6**.001 <0.001 Different 0.00 (54.61) THEFT. า กัก 0.00 **c**0.001 1.50 ONE AVG SAMON SCHOOL MOUNT AVG 5 MOLY AVG Average Quality (46-53) 2 0 ******* ******* ******* 99 - 04 - 01 (4 Card Only) I CRITEY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FAMILLAR WITH THE INFORMATION SUBMITTED HEREIN AND BASED ON MY INQUIRY OF THOSE INDIVIDUALS BANEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION. I BELLEVE THE SUBAITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM 001 AND 33 USC. 1319. (PENALTIES UNDER THESE STATUTES MAY INCLUDE FINES UP TO INFORMATION INCLUDING THE POSSIBILITY OF FIRE AND IMPRISONMENT SEE IS USC Minimum \$10,000 AND OR MAXIMIM IMPRISONMENT OF BETWEEN 6 MONTHS AND 3 YEARS.) ****** Spirit State *** ****** ******* ******* ******* ****** **MARKETON** ****** LBS/DAY Loading LBS/DAY LBS/DAY FROM LBS/DAY LBS/DAY LBS/DAY LBS/DAY Chit (36) (20)(26) (26)(50)(26) (92) DAILY MAX DAILY MAX DAILY MAX DAILY MAX DAILY MAX DAILY MAX þ Maximum <0.23 <0.23 10.05 <0.23 <0.23 Quantity <0.22 <0.23 17.48 **<0.22** (Z. 18) Z, X (3 Card Only) MON AVG MON AVG MON AVG MON AVG Average ******* ******* ******* Location: SULLIVAN COUNTY TN 37662-5393 REOUREMENT RESPIREMENT RECVIPENT PERNIT REGULATION MEASUREMEN MEASUREMEN REQUIRENT MEASUREMEN MEASUREMEN REQUIRENT MEASUREMEN RECTURENT MEASUREMEN MEASUREMEN SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE NAME/TITLE PRINCIPAL EXECUTIVE OFFICER Tennessee Eastman Division H. H. Holliman, President CARBON TETRACHLORIDE **PARAMETER EFFLUENT NET VALUE EFFLUENT NET VALUE** EFFLUENT NET VALUE **EFFLUENT NET VALUE EFFLUENT NET VALUE** EFFLUENT NET VALUE **EFFLUENT NET VALUE** 1,2-DICHLOROETHANE ACENAPHTHYLENE **ACENAPHTHENE** ACRYLONITRILE 32103 2 0 0 32102 2 0 0 CHLOROFORM 32106 2 0 0 34010 2 0 0 34200 2 0 0 34205 2 0 0 34215 2 0 0 TOLUENE

COMMENT AND EXPLANATION OF ANY VIOLATIONS

TYPED OR PRINTED

(Reference all attachments here)

In addition to taking reasonable steps to prevent instances of noncompliance through the implementation of SPCC and SPCC-type plans, employee training, etc. when a potentially significant instance occurs, we notify the Division and provide information concerning the steps taken or planned to reduce, eliminate, and prevent recurrence of the instance.

EPA FORM 3320-1 (REV. 9-88) Previous editions may be used.

(REPLACES EPA FORM T-40 WHICH MAY NOT BE USED.)

(REPLACES EPA FORM T-40 WHICH MAY NOT BE USED.)

EPA FORM 3320-1 (REV. 9-88) Previous editions may be used.

YEAR MO DAY 99 - 07 - 13 Sample GRAB GRAB GRAB Type (02-69)Grab Grab GRAB Grab GRAB GRAB DATE Grab GRAB Srab Br Grab Grab AREA CODE NUMBER (423) 229-2000 **TELEPHONE OUABRERIY** QUARERLY Frequency of **QUARKERIS** OUTSEERLY DUARTERLY OU ARERIA CUARTERIN 3/Quarter 2/Quarter 3/Quarter 2/Quarter anatysis 2/Quarter 2/Quarter 2/Quarter (64-68) -S M (62-63 0 0 0 0 0 0 0 SIGNATURE OF PRINCIPAL EXEQUTIVE , Lind MG/L MG ¥G/N <u>₩</u> MG/ OFFICER OR AUTHORIZED AGENT MG/L **₩**G/L <u>3</u> (19) € (19) £) 9 <u>6</u> MAX. DAIRY MAX. Concentration DALLY MAX DAILY MAX 20000 **6**0.00 60.00 **6**.00 (54-61) Maximum 98,46 **6**0.00 6.00 100 2 6.09 1 **6**.00 OSCORED MON AVE MON AVG ö MON AVE Average ******* ****** (46.53) ******* Quality (4 Card Only) INFORMATION INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT SEE IS USC 1001 AND 33 USC, (31)9, (PENALTIES UNDER THESE STATUTES MAY INCLUDE FINES UP TO FAMILIAR WITH THE INFORMATION SUBMITTED HEREIN AND BASED ON MY INQUIRY OF Minimum DALLY HAX LBS/DAY THAT HAVE PERSONALLY EXAMINED AND AN BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM \$10,000 AND OR MAXIMUM IMPRISONMENT OF BETWEEN 6 MONTHS AND 5 YEARS.) ****** ****** ****** 日海 Marie St. ******* ******* ****** STREET, SQUARE, SQUARE ******* ***** AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE LBS/DAY LBS/DAY Loading LBS/DAY LBS/DAY LBS/DAY LBS/DAY Ë (38) (56)(92) (38) (26) 26 (26) DAILY MAX DAILY MAX DAILY MAX DAILY MAX DAILY MAX DAILY MAX ŏ Maximum <0.23 Quantity (54-61) <0.22 29.72 <0.22 <0.22 <0.23 0.354 <0.22 **2**2 <0.22 96 H 3.64 (3 Card Only) HON AVG MON AVG MON AVG HON AVG Average MON AVG MON AVG HON AVG OF PASS ******* ****** ****** (46-53) ****** 10 REQUIRENENE MEASUREMEN REQUIRENT REQUIRENIEN MEASUREMEN MEASUREMEN MEASUREMEN REQUIRENTAL MEASUREMEN REODINEMEN MEASUREMEN MEASUREMEN REQUIREMENT REQUIREMENT MEN SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE NAME/TITLE PRINCIPAL EXECUTIVE OFFICER **Tennessee Eastman Division** TYPED OR PRINTED H. H. Holliman, President BENZO (K) FLUORANTHENE **PARAMETER** EFFLUENT NET VALUE **EFFLUENT NET VALUE** EFFLUENT NET VALUE EFFLUENT NET VALUE EFFLUENT NET VALUE BENZENE, DISSOLVED EFFLUENT NET VALUE **EFFLUENT NET VALUE** DIETHYL PHTHALATE (32-37)BENZO (A) PYRENE CHLOROBENZENE 34235 2 0 0 34336 2 0 0 34220 2 0 0 34242 2 0 0 34247 2 0 0 34301 2 0 0 34320 2 0 0 ANTHRACENE CHRYSENE

FORM APPROVED OMB No.2040-0004 NOTE: Read instructions before completing this form.

99 - 06 - 30

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99 - 04 - 01

FROM

Location: SULLIVAN COUNTY TN 37662-5393

Facility: TN EASTMAN - KINGSPORT

TN 37662-5393

MONITORING PERIOD

"" NO DISCHARGE

EFFLUENT

PROCESSED WW QUARTERLY REPORT

(SUBR 06)

MAJOR

NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)

DISCHARGE MONITORING REPORT (DMR)

F. FINAL

DISCHARGE NUMBER

PERMIT NUMBER

TN0002640

DIVISION OF EASTMAN CHEMICAL CO

P.O BOX 1993 KINGSPORT

TN EASTMAN DIVISION PERMITTEE NAME/ADDRESS:

COMMENT AND EXPLANATION OF ANY VIOLATIONS

(Reference all attachments here)

In addition to taking reasonable steps to prevent instances of noncompliance through the implementation of SPCC and SPCC-type plans, employee training, etc. when a potentially significant instance occurs, we notify the Division and provide information concerning the steps taken or planned to reduce, eliminate, and prevent recurrence of the instance.

YEAR MO DAY

99 - 07 - 13

GRAB DATE

Grab

GRAB

Grab

NOTE: Read instructions before completing this form. PROCESSED WW QUARTERLY REPORT AREA CODE NUMBER (423) 229-2000 OF ALTERISA QUARERING. FELEPHONE CONNECTION QUAPERIOR Frequency of OUAN ER 2/Quarter 2/Quarter 2/Quarter 2/Quarter 2/Quarter 3/Quarter analysis 3/Quarter (64-68)*** NO DISCHARGE (62-63)S M EFFLUENT 0 0 0 0 0 (SUBR 06) 0 0 F - FINAL MAJOR SIGNATURE OF PRINCIPAL EXECUTIVE <u>Pit</u> Š MG/L MG/L MG/L OFFICER OR AUTHORIZED ÁGENT MG/L MG/L Mor (19) £ 6 6 19 6 (6E 99 - 06 - 30 Concentration DAILY MAX DAILY MAX DISCHARGE NUMBER <0.00 <0.001 **6**0.00 Maximum <0.007 <0.008 <0.001 \$0.00 100.00 NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERIOD ö Average MONEYVE MONITORING)(o)'' 0 (46-53) ****** ***** Quality DISCHARGE MONITORING REPORT (DMR) - 04 - 01 INFORMATION INCLUDING THE POSSBILLTY OF TINE AND IMPRISONMENT SEE IN USC 1001 AND 33 USC, 1319. (PENALTES UNDER THESE STATUTES MAY INCLUDE FINES UP TO FAMILIAR WITH THE INFORMATION STEMITTED HEREIN AND BASED ON MY INCULIRY OF THOSE INDIVIDUALS BAMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION I (4 Card Only) BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM Minimum LAW THAT I HAVE PERSONALLY EXAMBRED AND AM \$10,000 AND OR MAXIMUM IMPRISONMENT OF BETWEEN 6 MONTHS AND 5 YEARS.) ****** ****** ******* The law area ******* ****** ****** 1 ******* To the same of ******** AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE 99 LBS/DAY LBS/DAY LBS/DAY Loading LBS/DAY LBS/DAY LBS/DAY LBS/DAY FROM PERMIT NUMBER Z C (56) (20) (56) (28) (26) (28)(28)EXIST NAX DAILY MAX DAILY MAX TN0002640 DAILY MAX DAILY MAX DAILY MAX TIMEY WAX Quantity or Maximum <0.22 <0.22 14.86 <0.22 6.35 <1.51 <172 <0.23 **14.52** <0.23 (54.61)10.27 0871 (3 Card Only) MON: AVG Average , itel ST NO **** ****** 7(0); TN 37662-5393 DIVISION OF EASTMAN CHEMICAL CO. A BERNIA RECDIBENEVE MEASUREMEN REGISTENT MEASUREMEN REGISTATION MEASUREMEN MEASUREMEN MEASUREMEN REQUIREMENT MEASUREMEN MEASUREMEN RECHIPENEY SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE PERMIT 들이 기타크기 NAME/TITLE PRINCIPAL EXECUTIVE OFFICER Facility: TN EASTMAN - KINGSPORT KINGSPORT, TN 37662-5393 Location: SULLIVAN COUNTY Tennessee Eastman Division TYPED OR PRINTED H. H. Holliman, President TN EASTMAN DIVISION PERMITTEE NAME/ADDRESS: HEXACHLOROBUTADIENE **PARAMETER**

FORM APPROVED

OMB No.2040-0004

Sample

Type

(90-50)

DIMETHYL PHTHALATE

(32-37)

P.O BOX 1993

EFFLUENT NET VALUE

FLUORANTHENE

EFFLUENT NET VALUE

FLUORENE

EFFLUENT NET VALUE

EFFLUENT NET VALUE

HEXACHLOROETHANE

EFFLUENT NET VALUE

METHYL CHLORIDE

GRAB

COMMENT AND EXPLANATION OF ANY VIOLATIONS

METHYLENE CHLORIDE

EFFLUENT NET VALUE

EFFLUENT NET VALUE

EPA FORM 3320-1 (REV. 9-88) Previous editions may be used.

(Reference all attachments here)

In addition to taking reasonable steps to prevent instances of noncompliance through the implementation of SPCC and SPCC-type plans, employee training, etc. when a potentially significant instance occurs, we notify the Division and provide information concerning the steps taken or planned to reduce, eliminate, and prevent recurrence of the instance.

Š 99 - 07 - 13 NOTE: Read instructions before completing this form. FORM APPROVED OMB No.2040-0004 DATE GRAB GRAB GRAB YEAR MO GRAB GRAB GRAB GRAB Sample Grab Grab Grab (02-69) Grab Grab Type Grab Grab PROCESSED WW QUARTERLY REPORT AREA CODE NUMBER (423) 229-2000 TELEPHONE OUT OF ERLEY QUARTERLY OUARTERLY DUARTERLY. OUNTERINE QUARTERLY Frequency of QUARKERLY *** NO DISCHARGE 3/Quarter 3/Quarter 2/Quarter 2/Quarter 2/Quarter 3/Quarter 3/Quarter analysis (64-68) (62-63) 일 전 0 0 0 0 0 0 0 (SUBR 06) **EFFLUENT** F-FINAL SIGNATURE OF PRINCIPAL EXECUTIVE MAJOR OFFICER OR AUTHORIZÉD AGENT Ę MG/L MG/L ÄĞ MG/L ¥G/L ÄĞ MG/L (19) (19) <u>6</u> <u>6</u> 6 (19) 3 DAILSE MAX O'SON HAX AND THE STATE OF DALES HAX DAILY MAX 99 - 06 - 30 Concentration DISCHARGE NUMBER DAIEY MAX <0.001 **6**0.00 0.00 **6**0.00 800 6.00 **60.00** (54-61)Maximum NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) MONITORING PERIOD MON AVG O'022 MON AVG MON AVG WON AVG MON AVG MON AVG þ Average 0.00082 0.00082 ****** ******* ****** (46-53)****** ****** 2 002 Quality DISCHARGE MONITORING REPORT (DMR) ION AND 13 USC, 1319, (PENALTIES UNDER THESE STATUTES MAY RACLUDE FINES UP TO \$10,000 AND OR MAXIDADM IMPRISONMENT OF BETWEEVE MONTHS AND 3 YEARS) KIRMITTED HEREIN AND BASED ON MY INQUIRY OF 99 - 04 - 01 INFORMATION INCLUDING THE POSSIBILITY OF TINE AND IMPRISONMENT SEE IN USC ACCURATE AND COMPLETE, I AM (4 Card Only) EXAMINED AND AM Minimum ******* AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE ******* *** ******* ******* ******* ******* and deposits ******* A-population of ***** ****** DAILY MAX LBS/DAY LBS/DAY LBS/DAY LBS/DAY LBS/DAY LBS/DAY LBS/DAY FROM Loading PERMIT NUMBER Chi 38 8 (28) (38) 26) (98) (28) BELIEVE THE SUBMITTED INFORMATION IS TRUE THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE DANEY MAX DAILY MAX DAILY MAX DAILY MAX DAILY MAX DAILY MAX TN0002640 5 Maximum <0.23 <0.23 <0.23 <0.23 <0.22 14.86 <0.22 <0.22 0.354 12.24 9.35 Quantity (54-61) PERMINEMENT AND MAKE (3 Card Only) HON AVG MON AVG MON. AVG ON AVG FAMILIAR WITH THE MON AVG MON AVG Average ******* ******* 0.179 ***** (46-53) Location: SULLIVAN COUNTY TN 37662-5393 PERME REQUIREMENT REQUIREMENT REQUIREMENT REQUIREMENT RECUIRENT MEASUREMEN PERMENT REQUIRENT MEASUREMEN MEASUREMEN MEASUREMEN MEASUREMEN DIVISION OF EASTMAN CHEMICAL CO. MEASUREMEN MEASUREMEN SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE NAME/TITLE PRINCIPAL EXECUTIVE OFFICER Facility: TN EASTMAN - KINGSPORT TN 37662-5393 Tennessee Eastman Division TYPED OR PRINTED H. H. Holliman, President TN EASTMAN DIVISION PERMITTEE NAME/ADDRESS: 1,1,1 - TRICHLOROETHANE 1,1 - DICHLOROETHYLENE **TETRACHLOROETHYLENE EFFLUENT NET VALUE EFFLUENT NET VALUE PARAMETER** EFFLUENT NET VALUE EFFLUENT NET VALUE EFFLUENT NET VALUE 1,1 - DICHLOROETHANE EFFLUENT NET VALUE EFFLUENT NET VALUE PHENANTHRENE P.O BOX 1993 NITROBENZENE 34496 2 0 0 34501 2 0 0 34506 2 0 0 34475 2 0 0 KINGSPORT. 34461 2 0 0 34469 2 0 0 34447 2 0 0 PYRENE

COMMENT AND EXPLANATION OF ANY VIOLATIONS

(Reference all attachments here)

in addition to taking reasonable steps to prevent instances of noncompliance through the implementation of SPCC and SPCC-type plans, employee training, etc. when a potentially significant instance occurs, we notify the Division and provide information concerning the steps taken or planned to reduce, eliminate, and prevent recurrence of the instance.

(REPLACES EPA FORM T-40 WHICH MAY NOT BE USED.)

EPA FORM 3320-1 (REV. 9-88) Previous editions may be used.

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concerning the steps taken of planned to reduce, eliminate, and prevent recurrence of the instance.	
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PAGE 5 OF 8

In addition to taking reasonable steps to prevent instances of noncompliance through the implementation of SPCC and SPCC-type plans, employee training, etc. when a potentially significant instance occurs, we notify the Division and provide information conc EPA FORM 3320-1 (REV. 9-88) Previous editions may be used.

PERMITTEE NAME/ADDRESS:		NAT	IONAL POLLUTA	ANT DISCH	NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)	TION SYSTEM	(NPDES)	MAJOR			FORM APPROVED
TN EASTMAN DIVISION			DISCHAR	SE MONITO	RGE MONITORING REPORT (DMR)			(SUBR 06) 1	ê B		OMB No.2040-0004
DIVISION OF EASTMAN CHEMICAL CO.	HEMICAL CO.		₹			002 Q		F - FINAL	- !		
P.O BOX 1993			PERMIT N	NUMBER		DISCHAR	DISCHARGE NUMBER	PROCE	SSED	PROCESSED WW QUARTERLY REPORT	REPORT
KINGSPORT, IN 37662-5393	5393 CEDOPT				NOM	ACNITODING DE	DEDION	EFFLUENT	ENT	EFFLUENT	
Location: SULLIVAN COUNTY TN 3	Y TN 37662-5393	-5393		FROM	99 - 04 - 01		99 - 06 - 30	NOTE: F	Read ins	_ <u>§</u> [npleting this form.
PARAMETER (32-37)		(3 Card Only) (46-53)	Quantity or (54-61)	Loading	(4 Card Only) (38-45)	Quality or (46-53)	Concentration (54-61)		Š Ņ	Frequency of analysis	Sample Type
	/	Average	Maximum	Unit	Minimum	Average	Maximum	Unit	(62-63)	(64-68)	(02-69)
1,1,2 - TRICHLOROETHANE	SAMPLE MEASUREMEN	******	<0.23	(26)	*******	*******	<0.001	(19)	0	3/Quarter	Grab
34511 2 0 0 EFFLUENT NET VALUE	RECIMIENT	458 MON AVG	DAULY MAX	LBS/DAY	1	0028 MON AVG	XVIII XXIIVO	MG/L		QUABITERLY	GRAB
BENZO (A) ANTHRACENE	SAMPLE MEASUREMEN	*******	<0.22	(26)	*******	*******	<0.001	(19)	0	2/Quarter	Grab
34526 2 0 0 EFFLUENT NET VALUE	REQUIREMENT	1.76 MON AVG	DAILY MAX	LBS/DAY	********	C'008 MON AVG	DAILS MAX	MG/L	2 2	QUARTERIEN	GRAB
1,2 - DICHLOROBENZENE	SAMPLE MEASUREMEN	******	<0.23	(26)	****	*****	<0.001	(19)	0	3/Quarter	Grab
34536 2 0 0 EFFLUENT NET VALUE	RECHIRENE	16783 MON AVG	35.62 DAILY MAX	LBS/DAY	************	MON AVG	DAILS MAX	MG/L		QUABLERLY	GRAB
1,2 - DICHLOROPROPANE	SAMPLE MEASUREMEN	******	<0.23	(26)	****	有 有 有 有 有 有 有	<0.001	(19)	0	3/Quarter	Grab
34541 2 0 0 EFFLUENT NET VALUE	REQUIRENENT	33743 MON AVG	50:26 DAILY MAX	LBS/DAY		OTS3 "" MON AVG.	DAIES MAX	MG/L	1 1 1 1	QUÁRITERIS	GRAB
1,2 - TRANS - DICHLOROETHYLENE	SAMPLE MEASUREMEN	l	<0.23	(26)	******	*******	<0.001	(19)	0	3/Quarter	Grab
34546 2 0 0 EFFLUENT NET VALUE	RECOURTENT	469 MON AVG	DAILY MAX	LBS/DAY	annes, depré	0.021 MON AVG	DAILY MAX	MG/L		QUABRERLY	GRAB
1,2,4 - TRICHLOROBENZENE	SAMPLE MEASUREMEN	*******	<0.22	(26)	********	*******	<0.001	(19)	0	2/Quarter	Grab
34551 2 0 0 EFFLUENT NET VALUE	REQUIRENEED	MON AVG	DAILY MAX	LBS/DAY	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	MON AVG	DAILTR MAX	MG/L		QUABILERLY	GRAB
1,3 - DICHLOROPROPENE, TOTAL WEIGHT	SAMPLE MEASUREMEN	*******	<0.45	(26)	********	********	<0.002	(19)	0	3/Quarter	Grab
34561 2 0 0 EFFLUENT NET VALUE	REQUIREMENT	i	9.6.1 Daley Max	LBS/DAY	المنطقة المنطق المنطقة المنطقة	MON AVG	DAIDY MAX	MG/L	H	QU ÁR BERLY	GRAB
NAME/TITLE PRINCIPAL EXECUTIVE OFFICER	VE OFFICER	I CERTIFY UNDER PENALTY OF LAW THAT FAMILIAR WITH THE INFORMATION SUBMIT	I CERTIFY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMDED AND AM FAMELAR WITH THE INFORMATION SUBMITTED HEREIN AND BASED ON MY INQURY OF	NVE PERSONALLY HEREIN AND BAS	I HAVE PERSONALLY EXAMINED AND AM TED HEREIN AND BASED ON MY INQUIRY OF		\			TELEPHONE	DATE
H. H. Holliman, President		THOSE INDIVIDUALS IM BELLEVE THE SUBMIT AWARE THAT THE INFORMATION INCLUD	THOSE DIDIVIDUALS IMPERIATELY RESPONSIBLE FOR OFFIAINING THE INFORMATION I BELLEYE THE SUBMITTIED PROPRIATION IS THE ILL COUNTY AND COMPLETE. I AMANAMENT THE PROPRIEMATION FEMALITIES FOR SUBMITTING FALSE INFORMATION FALSE INFORMATION FALLEY.	LE FOR OBTAINING IUE, ACCURATE A ENALTIES FOR SUF FINE AND IMPRE	G THE INFORMATION I ND COMPLETE. I AM SMITTING FALSE SONMENT SEE 18 USC	M	Layler	- 1		-	
Tennessee Eastman Division	on	,1001 AND 33 USC ,1319. (\$10,000 AND OR MAXI	1001 AND 33 USC, 1319, (PENALTIES UNDER THESE STATUTES MAY INCLUDE FINES UP TO S10,000 AND OR MAXUMIM IMPRISONNENT OF BETWEEN 6 MONTHS AND 3 YEARS.)	E STATUTES MAY F BETWEEN 6 MOR	INCLUDE FINES UP TO THS AND 5 YEARS.)	SIGNATU	SIGNATURE OPPRINCIPAL EXECUTIVE	XECOTIVE		(423) 229-2000	- 20 - 66
TYPED OR PRINTED						OFFICE	OFFICER OR AUTHORIZED AGENT	AGENT	4	AREA CODE NUMBER	YEAR MO DAY

COMMENT AND EXPLANATION OF ANY VIOLATIONS

(Reference all attachments here)

CONTROL NAMED DE DE CO.		NATI	NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES)	NT DISCHA	RGE ELIMINAT	ION SYSTEM	(NPDES)	MAJOR	•	FORM APPROVED
THE CASTMAN DIVISION			DISCHARG	MONITOR	DISCHARGE MONITORING REPORT (DMR)	(DMR)		(SUBR 06)	Ü	OMB No.2040-0004
!		<u></u>	TN0002640		-	002 Q		F-FINAL		
DIVISION OF EASTMAN			PERMIT NU	IT NUMBER		DISCHARGE	SE NUMBER	PROCESSE	PROCESSED WW QUARTERLY REPORT	REPORT
F.O BOA 1993	5303	J			,			EFFLUENT		
JAN J	GSPORT		L		MOM	MONITORING PE	PERIOD	*** NO DISCHARGE	CHARGE [] ***	
Location: SULLIVAN COUNTY	Y TN 37662-5393	5393		FROM	99 - 04 - 01	TO	99 - 06 - 30	NOTE: Read	NOTE: Read instructions before completing this form.	pleting this form.
PARAMETER	2	(3 Card Only)	Quantity or	Loading	(4 Card Only)	Quality or	Concentration (54-61)	N X	Frequency of analysis	Sample Type
(32-31)		e l	Maximum	Unit	Minimum	Average	Maximum	Unit (62-63)	3) (64-68)	(02-69)
1,3 - DICHLOROBENZENE	SAMPLE	**********	<0.23	(26)	*****	*****	<0.001	(19)	3/Quarter	Grab
34566 2 0 0 BEFILIENT NET VALUE	REQUIREMENT	MON AVG	¥	LBS/DAY	******	Alon Vice	XXIII ANNO	MG/L	QUARRERIY	GRAB
1,4 - DICHLOROBENZENE	SAMPLE	·	<0.23	(26)	********	+444444	<0.001	(6)	3/Quarter	Grab
34571 2 0 0 FEFI HENT NET VALUE	PER MENT	MON'AVG	DAULY MAX	LBS/DAY	***************************************			MG/L	QUARKERIE	GRAB
2 - CHLOROPHENOL	SAMPLE MEASUREMEN	*******	<0.22	(26)	*******	********	<0.001	(19)	2/Quarter	Grab
34586 2 0 0	REGUISENEY	MONTA	DAILY MAX	LBS/DAY	*********	Six wife		MG/L	P. QUARTERIES	GRAB
2 - NITROPHENOL	SAMPLE MEASUREMEN	*******	<0.22	(26)	*******	******	<0.001	0 (61)	2/Quarter	Grab
34591 2 0 0 FEET HENT NET VALUE	REGINENT	HONYYG	TETOS DAILY MAX	LBS/DAY	** Andrews	MONI SAVČEN	DAUGK SLAX	MG/L	COURCERIE	GRAB
2,4 - DICHLOROPHENOL	SAMPLE MEASUREMEN		<0.22	(26)	*******	***	<0.001	<u>e</u>	2/Quarter	Grab
34601 2 0 0 EFFICIENT NET VALUE	REGUIREMENT	SVAT VOIN	24.47 DAILY MAX	LBS/DAY	elle e e e e e e	SVA NOM	DAULY MAX	MG/L	OUSTRIERLY	GRAB
2,4 - DIMETHYLPHENOL	SAMPLE MEASUREMEN	1	<0.22	(26)	******	*****	<0.001	(61)	2/Quarter	Grab
34606 2 0 0 EFFLUENT NET VALUE	REGUIREMENT	MONONG	7.87 DAILY MAX	LBS/DAY	******	MON'S BVG	DANIES NAX	MG/L	CUARTEBLY	GRAB
2,4 - DINITROTOLUENE	SAMPLE MEASUREMEN	***	<0.22	(26)	****	******	<0.001	(19)	2/Quarter	Grab
34611 2 0 0	TNEBMIT IN THE TRANSPORT OF THE TRANSPOR	40.00	62.27 DAILY MAX	LBS/DAY	********	MON: AVG	XON XING	MG/L	QUARTERLY	GRAB
NAME/THE PRINCIPAL EXECUTIVE OFFICER	IVE OFFICER		I CENTRY LIDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM FRANT ARE WITH THE INFORMATION SUBMITTED HEREIN AND BASED ON MY INQUIRY OF	NVE PERSONALLI HEREIN AND BA	W THAT I HAVE PERSONALLY EXAMINED AND AM SUBMITTED HEREIN AND BASED ON MY INQUIRY OF				TELEPHONE	DATE
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COMMENT AND EXPLANATION OF ANY VIOLATIONS

(Reference all attachments here)

In addition to taking reasonable steps to prevent instances of noncompliance through the implementation of SPCC and SPCC-type plans, employee training, etc. when a potentially significant instance occurs, we notify the Division and provide information concerning the steps taken or planned to reduce, eliminate, and prevent recurrence of the instance.

EPA FORM 3320-1 (REV. 9-88) Previous editions may be used.

(REPLACES EPA FORM 1-40 WHICH MAY NOT BE USED.)

PAGE 7 OF 8

FORM APPROVED OMB No.2040-0004 NOTE: Read instructions before completing this form GRAB GRAB GRAB GRAB GRAB GRAB Type (69-70)Grab Grab Grab Grab Grab Grab Grab PROCESSED WW QUARTERLY REPORT OUABATERING. QUABERDE OUARMERIN Frequency of QUARTERIN **QUARTERIS** Control of the Contro *** NO DISCHARGE 2/Quarter 2/Quarter 2/Quarter 2/Quarter 2/Quarter 2/Quarter 3/Quarter analysis (64-68)(62-63) S 및 0 0 0 0 0 0 0 EFFLUENT (SUBR 06) F-FINAL MAJOR Unit ¥G/L MG/L MG/L MG/L MG/L MG/L (19) 13) 3 6 £ (19) (19) 99 - 06 - 30 Concentration DISCHARGE NUMBER DAILY MAX **60.09 6**0.00 **6**0.001 Maximum 6.00 **6**0.00 0.00 **6**0.00 W 0.8 NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) MONITORING PERIOD MON AVC MON AVG C ō MON AVG Average ****** ****** ******* ဝ 002 Quality DISCHARGE MONITORING REPORT (DMR) 99 - 04 - 01 (4 Card Only) Minimum ****** ****** . The state of the s 150 ******* A. 12 **** ****** ******** ******* LBS/DAY LBS/DAY LBS/DAY Loading LBS/DAY LBS/DAY LBS/DAY PERMIT NUMBER FROM Unit (56) (56) (56) (50)9 (58)(26)Zens. Pallocamax DAIRSAMAX DAIRSAMAX FOST DAILY AND X TN0002640 DAILYMAX ŏ Maximum <0.23 (54-61) <1.72 <0.22 <0.22 **⇔** <0.22 Quantity <0.22 (3 Card Only) MON AVG MON AVG MION AVG Average ****** (46-53) ****** ******* ******* Location: SULLIVAN COUNTY TN 37662-5393 PERMIT RECUIRENT DIVISION OF EASTMAN CHEMICAL CO. MEASUREMEN REGINITAL MEASUREMEN MEASUREMEN REGINERATION MEASUREMEN REQUIRENTENT MEASUREMEN MEASUREMEN MEASUREMEN SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE Facility: TN EASTMAN - KINGSPORT TN 37662-5393 PHENOL, SINGLE COMPOUND IN EASTMAN DIVISION PERMITTEE NAME/ADDRESS 4,6 - DINITRO - O - CRESOL **PARAMETER** EFFLUENT NET VALUE **EFFLUENT NET VALUE** 2,6 - DINITROTOLUENE 2,4 - DINITROPHENOL (32-37)ETHYL BENZENE P.O BOX 1993 4 · NITROPHENOL 34694 2 0 0 KINGSPORT. NAPHTHAL ENE 34696 2 0 0 34646 2 0 0 34657 2 0 0 34626 2 0 0 34616 2 0 0

COMMENT AND EXPLANATION OF ANY VIOLATIONS

Tennessee Eastman Division

TYPED OR PRINTED

(Reference all attachments here)

1001 AND 33 USC, 1319, (PENALTES UNDER THESE STATUTES MAY INCLUDE FINES UP TO \$10,000 AND OR MAXIMUM DEPUSONMENT OF BETWEEN 6 MONTHS AND 5 YEARS.)

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I HAVE PERSONALLY EXAMENED AND AM

LBS/DAY

REQUIREMENT

NAME/TITLE PRINCIPAL EXECUTIVE OFFICER

EFFLUENT NET VALUE

H. H. Holliman, President

BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE. I AM INFORMATION INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT SEE 18 USC

AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE

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AREA CODE NUMBER (423) 229-2000

SIGNATURE OF PRINCIPAL EXECUTIVE

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(REPLACES EPA FORM T-40 WHICH MAY NOT BE USED.)

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NOTE: Read instructions before completing this form. PROCESSED WW QUARTERLY REPORT AREA CODE NUMBER (423) 229-2000 TELEPHONE OUARTERING QUARTERLY QUARTERLY Frequency of QUARTERLY QUARTERLY **QÜÂRTERLY** QUARTERLY 2/Quarter 2/Quarter 2/Quarter 3/Quarter 3/Quarter analysis 3/Quarter 2/Quarter (64-68)*** NO DISCHARGE |__ (62-63)₂ 교 0 0 0 EFFLUENT 0 0 0 (SUBR 06) Q F - FINAL MAJOR SIGNATURE OF PRINCIPAL EXECUTIVE S MG/L MG/L MG/L MG/L MG/L OFFICER OR AUTHORIZED AGENT MG/L MG/L (19) (19) (3) 6 (19) (19) (19) 99 - 90 - 66 Concentration DAILY WAX DISCHARGE NUMBER THE HEX DAILY MAX DAILY MAX DAILY MAX DAILY MAX 0.005 <0.002 <0.001 <0.001 **c**0.001 (54-61) Maximum <0.001 0.054 **c**0.001 0.057 NATIONAL POLLUTANT DISCHARGE ELIMINATION SYSTEM (NPDES) PERIOD MON AVG MON AVG MON AVG MON AVG O'ODOTRE MON AVG Ø ŏ Average MON AVG MONITORING ******* 20.0 ******* ****** ဥ (46-53) 0.021 002 Quality DISCHARGE MONITORING REPORT (DMR) - 04 - 01 THOSE INDIVIDUALS IMMEDIATELY RESPONSIBLE FOR OBTAINING THE INFORMATION ! 1001 AND 33 USC, 1319 (PENALTES UNDER THESE STATUTES MAY INCLUDE FINES UP TO \$10,000 AND OR MAXIMUM INDRUSONMENT OF BETWEEN 6 MONTHS AND 5 YEARS.) (4 Card Only) AMILIAR WITH THE IMPORMATION SUBMITTED HEREIN AND BASED ON MY DAKURY OF Minimum INFORMATION INCLUDING THE POSSIBILITY OF FINE AND IMPRISONMENT SEE 18 USC BELIEVE THE SUBMITTED INFORMATION IS TRUE, ACCURATE AND COMPLETE I AM CERTITY UNDER PENALTY OF LAW THAT I HAVE PERSONALLY EXAMINED AND AM ******* (3845)****** ******* **** ******* ******* teritare ****** AWARE THAT THERE ARE SIGNIFICANT PENALTIES FOR SUBMITTING FALSE Water Park 66 LBS/DAY LBS/DAY LBS/DAY Loading LBS/DAY LBS/DAY LBS/DAY LBS/DAY PERMIT NUMBER FROM Ē 56 (26)26) (58) (92) 26) (56) DAILY MAX DAILY MAX TN0002640 DAILY MAX DAILY MAX * DAILY MAX DAILY MAX DAILY MAX ó Maximum <0.23 96.09 <0.43 12.45 <0.23 <0.22 Quantity 58.56 11.80 **\$0.52** <0.23 (54-61)1.08 58,56 0.081 (3 Card Only) MON AVG MON AVG MON AVG MON AVG Average MON AVG MON AVG ****** ******** 22.72 ******* ****** 22,22 (46-53) 5.90 0.041 ****** 4.59 ****** ocation: SULLIVAN COUNTY TN 37662-5393 DIVISION OF EASTMAN CHEMICAL CO. REQUIREMENT REQUIREMENT REQUIREMENT MEASUREMEN MEASUREMEN MEASUREMEN MEASUREMEN MEASUREMEN REQUIREMENT MEASUREMEN REQUIREMENT MEASUREMEN REQUIREMENT REQUIREMENT SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE SAMPLE PERMIT PERMIT PERMIT PERMIT PERMI NAME/TITLE PRINCIPAL EXECUTIVE OFFICER Facility: TN EASTMAN - KINGSPORT TN 37662-5393 Tennessee Eastman Division TYPED OR PRINTED H. H. Holliman, President TN EASTMAN DIVISION PERMITTEE NAME/ADDRESS: 3,4 BENZOFLUORANTHENE DI - N - BUTYL PHTHALATE **PARAMETER** EFFLUENT NET VALUE EFFLUENT NET VALUE EFFLUENT NET VALUE EFFLUENT NET VALUE HEXACHLOROBENZENE EFFLUENT NET VALUE EFFLUENT NET VALUE

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FORM APPROVED OMB No.2040-0004

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COMMENT AND EXPLANATION OF ANY VIOLATIONS

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